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FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

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THE DIFFERENTIATION OF DISEASES.

Last week we published a foreign description of equine infectious paraplegia, a disease which is probably not known to many English veterinarians. It does not seem ever to have been observed in this country; but it is known to exist in some neighbouring ones, and may be found here also. Its history is comparatively recent; and it is certainly possible to confuse it with other diseases, which indeed, has been done. This naturally suggests that its distribution may be wider than is yet realised. There are many examples in veterinary literature of diseases failing to gain independent recognition for long periods, because they were confused with other conditions more or less similar clinically.

Perhaps the most striking of such examples is Johne's disease. We all now know its prevalence, its wide distribution in many countries, and its great economic importance. Yet its recognition as an independent disease distinct from tuberculosis was only established ten years ago. The recognition of its wide prevalence—showing us how frequently it must previously have been mistaken for tuberculosis or strongylosis, followed close upon its differentiation as a distinct disease. We have made good progress against Johne's disease since then; but certainly great loss could have been avoided had it been differentiated earlier.

Instances such as this suggest the necessity for a more careful observation of cases seen in daily practice, and a more frequent communication between clinicians and pathologists. We are not here referring so much to the elucidation of a disease which is already recognised as a distinct pathological entity as to the essential preliminary step of first recognising it as such. History shows plainly that that first step is not always easy to take; and veterinary surgeons have often been regrettably slow in taking it. So many diseases have only obtained distinct recognition after long confusion with other conditions, and so many of these recognitions have been in recent years, that we may conclude that a good many similar discoveries are still waiting to be made. Every practitioner knows of some obvious problems in the differentiation of disease, such as the infectious respiratory affections of the horse. These problems can be best solved—and some can only be solved, by the co-operation of clinicians and pathologists.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

[NATIONAL V.M.A.—SOUTHERN BRANCH.]

The quarterly meeting was held at the Grand Hotel, Birmingham, on Tuesday, May 23rd. Mr. J. Malcolm, President, occupied the chair, and there were also present: Mr. W. H. Brooke, Major W. S. Carless, Messrs. J. Cormack, A. B. Forsyth, F. H. Gibbings, J. A. Gold, F. L. Gooch, Capt. L. W. Heelis, Messrs. W. E. Ison, J. Martin, R. Murray, E. O'Neill, H. L. Pemberton, F. V. Steward, S. M. Woodward, H. Yeomans, and H. J. Dawes, Hon. Sec. The visitors present were Messrs. J. W. Conchie, and J. R. Powley.

Apologies for unavoidable absence were read from Messrs. F. Hobday, C. E. Dayus, J. R. Carless, R. L. Phillips, D. Forwell, T. J. Brain, R. Cockburn, F. B. O. Taylor, T. H. Hobson, J. J. Burchnall, W. W. Grasby, J. Bainbridge, J. Martin, jun., Hughes, C. J. Byner, R. C. Trigger, W. Trigger, and others.

REPORT OF THE COUNCIL.

The HON. SEC. reported that a meeting of the Council was held immediately prior to this gathering, when there were present: Messrs. Malcolm (in the chair), Gooch, Martin, Pemberton, Ison, and Dawes. The only business under consideration was the programme for the next quarterly meeting, and it was stated that on that occasion the President will invite members to pay a visit of inspection to the abattoirs and sewage farm of the City of Birmingham.

On the motion of Mr. Gooch, seconded by the Hon. Sec., this report was adopted.

The minutes of the previous meeting were duly confirmed, and the rules of the Association were taken as read.

THE MOTOR TAX.

The HON. SEC. referred to the motor tax, about which an attempt was being made to get the same conditions as obtained in the sister profession. He failed to see why there should be any difference of treatment in the veterinary and medical professions. When they came to consider that many veterinary surgeons were doing a great amount of Government work, both in connection with the army and for the Board of Agriculture, they ought not to rest satisfied until they enjoyed the same privileges as the medical profession. He suggested that members do what they could to influence their Members of Parliament to help forward the movement.

Mr. ISON said that as the matter came on that week in the House of Commons there was not much time to lose.

Mr. GIBBINGS said he was talking to an M.P. friend of his the other day about the Veterinary Surgeons Bill, and he had to confess he had never heard about it. That only showed the necessity for enlightenment on Parliamentary matters even among Members of Parliament. This friend of his was a friend of Sir Frederick Banbury, the great opponent of the Bill, and had promised to try and induce Sir Frederick to take a more reasonable view of the subject. It only showed how necessary it was that they should have some sort of representation in Parliament. The medical profession

was strongly represented in the House, and could get practically what they wanted, whilst the veterinary profession was left behind.

Mr. PEMBERTON said this was a matter which should be pushed forward by each Association. Immediate and united action would carry the day.

Mr. GOOCH said that with regard to the rebate on petrol, he had already had his first rebate. Anyone working for the Board of Agriculture should have no difficulty in getting it.

After some further remarks, a resolution moved by the Hon. Sec. and seconded by Mr. Gibbings, was carried, urging each member of the Association to bring the matter before his own Member of Parliament, with a view to getting the same reduction in the motor tax as was enjoyed by the medical profession.

TUBERCULOSIS AND THE MILK SUPPLY.

By JOHN MALCOLM, F.R.C.V.S.

I am sure you will all be disappointed, as I need scarcely say I am, that it falls to my lot to be the introducer of the subject for your discussion to-day. We were all looking forward to a scientific treat from Major Taylor's promised paper of some aspects of an Army Veterinary Surgeon's work in war time; and none of you more regret than I that the exigencies of his military duties prevent his giving the paper he so kindly offered us. As the result of his inability we had to decide at very short notice on a subject for to-day's meeting. Now it so happens that recently I gave a paper on "Tuberculosis and the Milk Supply," before the Midland Association of Local Government Officers, and as it, at my request, had not been published, it occurred to me that this paper, with some necessary additions, modifications, and the elimination of certain sections, might not be unacceptable to fill the unexpected gap in this meeting's programme. Though this paper was originally prepared for a lay audience I thought there might be some points of interest in it even for a professional audience such as this. I am afraid I scarcely realised then the extent of the different requirements. A paper quite suitable for one audience may be quite out of place for another. I now see that the alterations, the additions, and the subtractions, which the short time at my disposal has permitted me to make are quite inadequate, and that nothing less than recasting and rewriting—in fact preparing another paper, would have sufficed for this occasion. Unfortunately this is impossible. Under the circumstances I feel I owe you an apology, and must ask your indulgence for submitting a paper that contains matters that you may regard as out of place here, and that you could well dispense with. I can only hope that such points as are of relevant interest together with the circumstances under which the paper is given may in some small measure exonerate me for taking up your valuable time at a period when time is of such vital moment to one and all.

Under normal circumstances the subject of "Tuberculosis and the Milk Supply," in one or other of its various aspects is one that might fairly be expected to appeal in some degree to the majority of our members, but in these critical days few of us in our spare moments can take any real interest in anything other than the war, its happening and prospects, or in subjects kindred thereto.

At the same time those who can sufficiently abstract their attention from these burning questions for a few brief moments may realise that our subject may not be entirely devoid of interest even in these days. We must not forget that, even if we achieve the speedy victory promised by our most optimistic prophets, our eventual position in the world must, to a not inconsiderable degree, be dependent upon the health and vigour of the rising and future generations. If the British people are to continue in the front rank of the world's race they must be reared physically sound and fit, so that during their normal period of vigorous manhood they may continue fully charged with the requisite energy and "go" necessary for that position. No man whose vital force is being, or has been, sapped by any insidious, incurable, enervating disease, such as is commonly the case in tuberculosis, whether of human or bovine origin, can be depended upon or expected to maintain a position in the world's front rank.

Bearing this in mind, I venture to suggest that a discussion on tuberculosis and the milk supply, or for that matter on the origin and the prevention of tuberculosis under any circumstance is, if not of immediate vital importance, yet so close in line of vital matters as to amply justify any spare-time consideration we can now afford to give it.

At the meeting I addressed the other evening many members inevitably possessed a very imperfect knowledge of the etiology of tuberculosis. Here it can be accepted that all know that tuberculosis is a specific contagious disease of man and animals, due to the introduction of living tubercle bacilli into the body tissues, in which the growth and multiplication of these bacilli give rise to the diseased condition universally known as tuberculosis; that the disease always arises in this way, and in no other, and that without the introduction of such living tubercle bacilli there is no tuberculosis. Formerly, as many of you will remember, tuberculosis was very commonly regarded as an hereditary disease. It is needless to remind you that this has been proved to be an error. It is not hereditary in any true sense, and cases usually regarded as of hereditary origin are either cases of ante-natal infection or early post-natal infection. Whether the disease commences before birth or after birth the process is practically identical—the transmission of infection from infected to free. In other words, tuberculosis is simply a contagious disease. It is in fact one of those contagious diseases of which the causal organism is an obligatory tissue parasite, and in which the organism is almost exclusively found in the diseased lesions in the body or in the discharges from diseased parts.

From this it can be safely inferred that the stamping out of the disease is by no means impossible. Evidently what is required is either to prevent the escape of tubercle infection from the diseased, or failing that to prevent its transmission to the non-tubercular. This is easy to state, and not difficult to accept, but not necessarily easy to effect. To be successful, accurate diagnosis is essential. Diseases at one time classed as tubercular are now known to be non-tubercular. The tuberculin test, together with our increased knowledge of the life-history and habits of the tubercle bacillus and of its tinctorial, cultural and infective characteristics, afford means for more accurate differentiation than at former times existed.

The tubercle bacilli, as you know, are very resistent and difficult to stain, owing to their containing a large proportion of fatty and waxy substances. They have the further quality that when once stained they hold the stain with great tenacity, and will retain it in acids which would instantly decolourise other stained bacteria. As you know, several other bacteria possess similar acid-fast properties, and these collectively are termed the acid-fast group. The first discovered member of this group was the tubercle bacillus; the list is now a fairly long one, and will in all probability receive further additions.

When microscopic examination of any suspected material has revealed the presence of acid-fast bacteria but leaves the origin of such in doubt, a reliable opinion can usually be obtained by the inoculation of guinea pigs or other small mammals susceptible to tubercle with the material. It takes from three weeks to a

month to obtain a definite result. The actual time required varies, as in some other processes, according to the number and type of the bacilli in the material being examined. The more numerous the bacilli and virulent the type the more rapid and profound its effects on the living subject, and the more widespread and extensive the lesions found on post-mortem. Where one cannot employ the animal inoculation test, either from non-possession of the necessary license or other cause, one can always revert to laboratory culture methods; since these, though generally and naturally undertaken only by special bacteriologists, may nevertheless be successfully attempted by any laboratory-trained, up-to-date expert veterinarian. Time and practical knowledge are the chief essentials, as there is nothing in the procedure entailing the use of any very expensive or elaborate plant.

On most ordinary bacterial culture-media the tubercle bacillus does not grow. The late Professor Koch used as a culture medium clear blood serum coagulated by heat. A better one has since been found—the egg medium. Some other laboratory media are also employed successfully, provided about five per cent. of glycerine is present. Thus in preparing tuberculin, glycerinated broth is the culture medium generally employed. When the surface of a suitable medium is sown with tubercle bacilli and is incubated at 89° to 100° F., thin, scaly, greyish or dull white growth appears in two or three weeks' time. The rapidity, the extent and the appearance of this growth varies within certain limits according to the medium and the type of the bacilli sown.

At the present day, with tuberculin we can as a rule test any herd of cows under ordinary circumstances and recognise with 95 per cent. of accuracy those animals that are affected and those that are free; and generally by a subsequent test in a month or six weeks' time we can separate the doubtful 5 per cent. into affected and free.

In using tuberculin, one has always to remember that a recently infected animal may fail to react or may give a doubtful reaction: that after an infected animal has been tested the reaction to a second test within a month is frequently unreliable; and that animals injected weekly for a period seem to acquire a certain tolerance to tuberculin for a time, though such animals if left alone generally—probably in within three to six months' time—again become reactors. Again, when an animal is in a febrile state the reaction may be unreliable. Subject to these and some other defects, tuberculin is one of the most reliable diagnostic agents known to the veterinary world. It should be remembered also that tuberculin occasionally gives a local swelling reaction when it is rubbed into an abraded part of the skin, or injected into the thin skin at the base of the tail. It also frequently causes a temporary ophthalmia or inflammation of the surface of the eye when instilled into the eye; but in veterinary practice these tests are not nearly so reliable as the subcutaneous test, which under normal conditions is an exceedingly reliable diagnostic and is the test generally relied upon.

When one has established a tubercle-free herd and attempts to keep it up by the purchase of non-reacting cows, instead of by the home breeding and rearing of tubercle-free cows, he invariably finds that a certain percentage of the purchased cows soon become reactors, and soon—much sooner than is usually believed—become a source of reaction in others. The reason why some of these non-reacting newly-purchased cows should so soon become reactors is probably owing to one or other of the causes I have mentioned. In our experience there is only one safe way to deal with such a herd, and that is to keep the recent purchases isolated in a separate shed or box for a month and then retest them. But there is this to contend with—any that then react will have to be sold or kept isolated, as vendors will not take back cows after a month's trial.

It is not my intention to discuss here the characters and uses of the different tuberculins, though I may say in passing that we rely almost exclusively upon the tuberculin from the Royal Veterinary Laboratory, Camden Town, London, issued for subcutaneous use. Our experience shows that with ordinary care it is almost absolutely reliable so far as the definite reactions and the non-reactions are concerned. But as we have sometimes doubtful reactions to deal with, I not unnaturally desired to see whether, besides the influences mentioned, they could in any degree be ascribed to the tuberculin, or to the operator, or to a herd's environment, or to some idiosyncrasy in tubercle-free doubtful reactors. As exporters of stock frequently stipulate that Pasteur's tuberculin shall be used for the animals they have tested for exportation—probably because of Pasteur's name and the existing powerful French veterinary influence in the Argentine, where most of our best exports go—I decided to employ the Camden Town and Pasteur's tuberculin in an equal number of similar cases and compare the results. I also asked Mr. Gold, of Redditch to adopt a similar procedure in a number of herds he was testing for us. We carried out a fairly large series of simultaneous testings. The results of our experiments were that we failed absolutely to find any benefit in the one tuberculin over the other, or any appreciable difference in the results following their use. Seeing that Mr. Gold's results and ours were indistinguishable, the test so far as it went seemed to exclude properly prepared tuberculins and competent operators as the responsible agents for the doubtful reactors.

I am still unable to apportion the degree of responsibility which should be ascribed respectively to environment and to individual influence or unexplained idiosyncrasy. When one, or perhaps two, doubtful reactors occur in testing a farly large herd—as, for example, when one case occurred in a herd of 86 others, non-reactors, at Tyburn, or one case among sixty others, non-reactors, at Tardebigge ten days ago—there is no difficulty in ascribing such doubtful cases to some temporary aberrent influence acting upon the individual. Some observers feel inclined to ascribe most of these cases to the effect of oestrum. There is no question that oestrum is present in a number of such cases, and it is difficult to exclude it as a factor. But as many tubercle-free cows in oestrum pass the test satisfactorily and other tubercle-free cows not in oestrum give a doubtful reaction, one has to look for some other cause in many cases. Among these may be mentioned both imminent and recent labour.

While one can fairly ascribe many such cases to something connected with the individual, there are as certainly other cases that appear to be dependent in some way upon the environment. We had recently an illustration of this in a herd in Staffordshire. This herd was tested on December 30th by the local veterinary surgeon, a very careful, experienced, and able practitioner. The result was that out of forty-eight cows tested, eighteen gave a doubtful reaction. On February 17th the herd was again tested by the same veterinary surgeon who, on this occasion, however, had Mr. White acting in collaboration with him. This time forty-six of the forty-eight tested in December were re-tested, and ten gave a doubtful reaction. Four gave a doubtful reaction at both tests; eleven doubtful at the first passed the second test; three doubtful at the first failed the second; four doubtful at the second test had passed the first, and two doubtful at the second had failed at the first. Thus 37·5 per cent. of the herd gave a doubtful reaction in December. Of these, 61·11 per cent. were passed in February, 22·22 per cent. were again doubtful and 16·66 per cent. had failed. At the February test 21·74 per cent. of those tested gave a doubtful reaction;

of these 40 per cent. were formerly doubtful, 40 per cent. had previously passed, and 20 per cent. had previously failed. The fact that there was a doubtful reaction in over a third of those tested in December and in nearly a fourth of those tested in February seems to point to some general influence having been in operation.

Mr. White's report at the time on the subject is interesting. It incriminates the ventilation. He says: "It will be observed that the temperatures of many of the cows at the fifteenth hour have fallen 1·5 degrees to 2 degrees, and subsequently risen again at the eighteenth hour. This variation is explained by the fact that the cows on showing signs of restlessness at the twelfth hour were turned out to water from the sheds, which at that hour were decidedly hot and stuffy. The weather was rather cold and wet, and one or two of the cows when brought in again showed marked rigors. The cowsheds are good lofty buildings and their atmosphere when occupied should be cool and pure, if the ventilation were efficient. The inlet ventilation appears good, but the outlet ridge ventilation is undoubtedly insufficient. This is very clearly proved by the hot and stuffy atmosphere which I found in these sheds in the morning before the doors had been kept open for any length of time for cleaning out. This inadequate ventilation also accounts for the marked rises in temperature at the ninth and twelfth hours with a subsequent fall at the fifteenth hour shown in the temperature chart of the test in December."

Here it would appear that at least a number of the doubtful reactions were due to the abnormal heat and the impure air in the shed during the night and morning after injection, and that these were responsible for the marked rise of temperature in a considerable number of the cows at the ninth and twelfth hours. Also that the subsequent sudden exposure to pure, fresh, cold air with cold water *ad lib.* was followed by a corresponding marked fall in temperature. Not only, as we know, does exposure to hot, impure air in a shed containing infected cows tend to favour the spread of tuberculosis from affected to free, but from the evidence respecting this Staffordshire dairy herd, such air seems to be responsible for at least a number of cases of doubtful reactions in tubercle-free cows.

Since these doubtful reactors are a real source of trouble, annoyance and expense both to the owner and the operator, and provide the sceptic with a weapon to cast unmerited reflections against the accuracy of the test, it is desirable that all information we possess concerning these should be brought forward. We therefore particularly desire members in the discussion to favour us with their experience of such cases and their view of the causes which they consider give rise to them.

I may note here a point in connection with testing which is of interest, in that, so far as it goes, it corroborates the view that animals ought to be tested in a good atmosphere and under natural conditions. A herd, numbering thirty-two cows, which my colleague Mr. De Vine some years ago had to test, was kept out day and night both summer and winter. As the owner desired the cows to be kept out all night during the test, Mr. DeVine tested them at the usual hour in the evening and they were then turned out in the usual way. The next morning they were brought up at the ninth hour and kept in until the eighteenth hour. The result was highly satisfactory. There were no reactors and no doubtful cases. Since then this herd has been similarly dealt with twice a year and the result has always been equally satisfactory.

Mankind, domestic animals, and birds are all susceptible to tuberculosis, and members of all these occasionally or frequently—largely according to their exposure to and opportunity for infection—become naturally infected. Of these, the human subject and the ox may be regarded as the most susceptible. It would be difficult to say which of these two is the more susceptible. The pig is probably the next most susceptible. In comparison with the occurrence of tuberculosis in these subjects, natural cases of the disease are relatively rare in the horse, dog and cat, and distinctly rare in the sheep and goat. But as Sir John M'Fadyean has convincingly taught and demonstrated, the relative frequency of natural attacks affords no real criterion of the actual susceptibility of a species to the disease. An apparent difference in susceptibility may simply be due to their living under different conditions for infection. Under experimental infection, the order of susceptibility becomes greatly changed. For example, sheep are very easily infected by inoculation and the disease in them usually runs a rapid course. Indeed, sheep appear to be even more susceptible to tuberculosis by experimental infection than the ox, and the infrequency of the disease in sheep under natural conditions must be put down to their outdoor mode of life, which does not expose them to great risk of infection.

Broadly speaking, tuberculosis is a disease of domestication. Animals in a state of nature are practically exempt. There are hardly any authentic cases of tuberculosis in wild animals, with the exception of burrowing animals, in their natural state. This is not due to natural insusceptibility, as a great many wild animals readily contract the disease when housed in zoological gardens. Their immunity is simply a consequence of their outdoor life.

Many practical men of wide experience say some breeds of cattle are more susceptible than others. On the other hand, M'Fadyean says that there is no evidence to show that any European breed of cattle has less or more susceptibility than any other breed, and that the observed differences in regard to the incidence in different breeds, for example, the frequency in Ayrshires and Shorthorns, and the relative rarity in Jerseys, Herefords, West Highlands, and Galloways, can be explained by the circumstances under which these animals live.

The degree of infection in Midland dairy herds tested by us has varied enormously. In one large herd in Staffordshire we found 84 per cent. affected. In a large herd in Warwickshire 58 per cent. were found affected. In a large herd in Worcestershire 72 per cent. were affected. A large herd on a farm nearly adjoining this Worcestershire farm was free. Another herd near Henley was also free, and recently Mr. White has found two free herds near Birmingham.

Neither in the Staffordshire herd referred to nor in the Worcestershire herd have any steps been taken to eradicate or even minimise the disease, and these herds continue seriously infected. The Warwickshire herd was dealt with by us, and now for some years has been absolutely free.

Though the evidence derived from experimental inoculation indicates that very few cattle of any breed are really immune to tubercular infection, and that it is very difficult to differentiate the real susceptibility of one breed from that of another, yet we are scarcely prepared to admit that all breeds are equally susceptible to infection, or, further, that all members of any one breed are equally susceptible. Anyone who goes into a dealer's shed and gets the option to purchase a dozen selected cows subject to their passing the tuberculin test, will find that a larger percentage of thick-skinned, indifferently-bred poor-milking types are tubercle-free and pass the test than is the case with well-bred, naturally thin-skinned, deep-milking types; and any farmer who has succeeded in securing an absolutely tubercle-free herd and is then unfortunate enough to introduce an infected cow into this herd will find in six months' time, if he then tests his herd, not only that several cows have become affected, particularly if the shed is small and badly ventilated, but that the newly infected are

not necessarily those standing immediately beside the introduced cow, but more probably cows standing here and there throughout the shed, and also the chances are that the majority of the recently infected cows will be some of the best—the thin-skinned, well-bred, deep-milkers.

We know that cows with fine thin skins have fine mucous membranes lining the digestive and respiratory tracts, and we may not unreasonably ask whether bacteria can more easily pass through a thin, fine membrane than a thick, coarse one. We also know that deep milking tends to weaken the constitution and lessen the resisting power against disease. We are convinced that deep milking breeds of cows with naturally fine skins and mucous membranes are more susceptible than others when kept under precisely the same natural conditions and submitted to the same degree of infection.

Any animal that is naturally susceptible to tuberculosis can be infected whatever the channel of entrance of the infection. The entrance may be by the digestive tract or by the respiratory, by inoculation under the skin, or into the blood vessels, or otherwise, but the result is practically the same; though no doubt the disease developes more rapidly after entrance by one channel than by another, as for example after intravenous or peritoneal inoculation than after subcutaneous inoculation.

At one time it was believed that infection by ingestion through contaminated food or water was the common way of infection in the ox. This is not so. It is now known that the mode of infection in that animal is by inhalation—by breathing infected air. In the horse and the pig, on the other hand, the common mode seems to be by ingestion. In the pig there is evidence of this in the early diseased condition of the throat glands

As already stated, tuberculosis is most prevalent in man and cattle. In dairy herds in this country approximately one in every three cows, or 33 per cent., is more or less tuberculous. And you may accept it that practically all the infected cows contracted the disease by contagion after birth. I say this in all confidence, although I have already said that a few calves are affected when born, but these cases of what may be termed congenital tuberculosis are not due to heredity, but simply infection in the womb. The number of these, however, are few. Only one calf in about 2000 is tuberculous when born, and there is reason to believe that all these so affected wasters die or are killed off long before the cow age.

We are told that the cow is the only animal in which tuberculosis of the udder is not absolutely rare. So far as my experience goes it corroborates this. Probably on the average one to three per cent. of tuberculous dairy cows are infected in the udder, that is, approximately one-third to one per cent. of the dairy cows in this country are affected with tuberculosis of the udder. The proportion is greatest where obviously affected cows are kept alive.

As a rule it is only those cows that have tuberculosis of the udder that yield tubercle-infected milk. From the report of the Royal Commission it appears that some emaciated cows with advanced tuberculosis but free from tuberculosis of the udder also yield tubercle-infected milk. This is in accordance with our experience here.

Another source of tubercle infection in the milk may be the contamination of the milk with infected cow-dung. Even in the cleanest sheds it is difficult to prevent some contamination of the milk; where the cows and cowsheds are dirty and the milkers careless the extent of contamination is sometimes more than one cares to think can possibly be the case. Now it is well known that cows with tuberculosis of the respiratory as well as of the digestive tract have infected excreta. This is not to be wondered at when it is remembered that when cows that are affected with tuberculosis of the lungs cough, though some of the expectorate is ejected through the nose and mouth, the most of it is swallowed, and living bacilli in this expectorate pass uninjured through the digestive tract.

Clearly not only emaciated tuberculous cows and cows with tuberculosis of the udder ought to be eliminated (as prescribed in the Milk Bill now in suspension until the end of the war), but all cows affected with tuberculosis in any degree ought ultimately to be eliminated from all dairy herds, and this ought to be on the Scheduled list of the State, and of every Health Authority, as one of the reforms that only await a fitting opportunity for attainment.

Tuberculosis of the udder usually begins at a definite point in one quarter of the udder (most frequently a hind quarter) and from there the disease slowly extends, giving rise to a cold, hard, gradually increasing swelling in the affected quarter, in place of the normal flaccid condition. After a time the disease not infrequently extends to one or more of the other quarters. The milk soon becomes infected, but its appearance and quantity is not at first much altered, and as a rule the dairymen are very sceptical as to there being anything amiss with it. But by-and-by the yield begins to decrease, the milk becomes thin and bluish, and the casein tends to separate. After a longer or shorter period the affected quarter or quarters cease secreting. The period during which a cow with tuberculosis of the udder may continue to yield milk varies greatly. Some time ago, as was mentioned to you at our last meeting, we purchased a cow with tuberculosis of the udder for Prof. Leith, who wished to have her milk for experimental purposes. She went completely dry in two months. She had only recently calved, and rapidly broke up after we purchased her. Later on we purchased another for him. She had been giving infected milk for at least a month before purchase. She has now been in our possession for seven months and is still giving a good daily yield of normal looking though infected milk, and seems likely to continue to do so for some time. She is not in calf. I showed you samples of her milk from each teat at our last meeting three months ago. The yield has lessened since then, otherwise its appearance is much the same. The daily yield has been taken each week. On February 3rd and May 18th it was respectively as follows:—

		Right hind	Right fore	Left hind	Left fore	Total	
		oz.	oz.	oz.	oz.	oz.	pints.
Feb. 3	a.m.	26	21	6	10	63	= 7
	p.m.	32	26	6	13	77	
May 18	a.m.	22	18½	4	9½	54	= 4.97
	p.m.	19½	14½	3½	8	45½	

The disease is evidently progressing very slowly. This may probably partly be the result of her environment.

The accurate diagnosis of tuberculosis of the udder is really a matter for the expert, and an inspector is somewhat handicapped in that he must not make a mistake. He may suspend decision for a time, but when his decision is given it must be right. The result of this is that it sometimes takes a longer period to get a definite decision than one could wish. When diagnosis can be made clinically there is no delay; when it can be made by microscopic examination of the milk a day or two suffices; but where the milk has to be submitted to the biological test three weeks or a month is required. This is rather unfortunate, as one has to decide what to do with the suspected milk in the meantime. Of course it should not be sold, but it may safely be used as calves' food, etc., if boiled before using. Against the disadvantage of the time required for biological test can be set this great advantage—that though a negative result may leave one in some doubt as to the

condition, a positive result can be accepted as infallible evidence that the milk is infected.

That there is danger in using tubercle-infected milk is now generally conceded. You will remember that after Koch's memorable pronouncement in 1901—that tubercular disease in man and cattle was not the same disease, and that it was unnecessary to take any preventative precautions with respect to infected milk—a Royal Commission was appointed to investigate the question. Bacteriologists all over the world took the matter up. The results of the investigations of the Royal Commission and other workers have proved beyond a doubt the transmissibility of the bovine tubercle bacillus from animal to man. The extent of this transmission may be disputable, but the fact of its occurrence is indisputable.

One of the most striking series of investigations, which prove the existence of bovine tubercle bacilli in the enlarged cervical glandular lesions of children, and their relative frequency, was carried out by Dr. A. Philp Mitchell in Edinburgh, 1911-1913, and was recorded in *The British Medical Journal*, Jan. 17, 1914.

Different characteristics connected with the bacilli afford the necessary basis for differentiation in investigations of this kind. For example, the bovine type of bacilli is much more virulent when inoculated into rabbits than is the human type, and it grows much more luxuriantly and rapidly on egg medium than the human type, and further, this difference in growth on culture media is much greater when glycerine has been added to the media.

Working on these and other recognised lines Philp Mitchell found that out of a total of seventy-two consecutive cases in children investigated by him, sixty-five instances or 90 per cent. showed that the bovine bacillus was present and only in seven cases or 10 per cent. the human bacillus. I admit these results show a greater relative degree of bovine tubercle bacilli in the tubercular lesions of children than those of most other workers, but in no records which I have read do the investigations appear to have been more carefully or exhaustively carried out. No one can question that we have here abundant grounds for the Government and our local Health Authorities taking up the matter of tuberculosis in dairy herds with a view to eliminating from these herds cows which infect the milk supply.

The present state of affairs cannot be permitted to continue. Indeed the powers that be have no intention that it shall. As all of you know, a National Milk and Dairies Bill with tuberculosis provisions is for the first time now upon the Statute Book. Unfortunately its operation has had to be suspended until the end of the war. When that occurs, this Bill will come into force. In many senses it is not a great Bill. Government would not attempt to pass any opposed Bill, so all contentious matter had to be eliminated. When it does come into force it will not perhaps greatly benefit Birmingham or any of the other large towns where dairy inspection has been in force for some time, but so far as the country generally is concerned its effects cannot fail to be beneficial. One of its weakest points, in my opinion, is that periodic systematic veterinary dairy inspection is an optional provision and not a compulsory one. In due course we may look to public opinion to remedy this and other defects.

The difficulties in the way of effecting complete eradication of bovine tuberculosis are admittedly great, and few people of much practical experience and knowledge are prepared to advocate the immediate attempt. This is an ideal for future effort. At present it can be accepted that the general prevalence of the disease, the time required to replace infected cattle by free, the extent of the veterinary and other administrative service necessary, and the cost involved make any very rapid extinction of the scourge impossible of attainment. But, as I said elsewhere, I am hopeful that when once the necessary State measures have been adopted the period required for ultimate eradication will prove to be shorter than many anticipate. The process cannot fail to gain impetus and the final result will be hastened by the rapid education of stock-owners now going on as to the cause of the disease and its spread; also the methods by which the prevention of new cases may be secured and the eradication of existing cases most easily and economically effected.

The Royal Agricultural Society of England a couple of years ago at their experimental farm at Woburn in Bedfordshire gave a most illuminating demonstration on how to rear tubercle-free stock from tuberculous parents. The experiments were placed in the hands of Sir John M'Fadyean, and members of the Society were invited to witness the experimental animals. Many members, including myself, took advantage of the invitation. A number of known tuberculous cows in calf whose condition was verified by the tuberculiu test and subsequently reverified on slaughter, were purchased and kept at one station of the farm until they calved. Immediately a calf was born it was taken away from the mother and removed to another station of the farm where there were only tubercle-free cattle, and reared there. They were kept until they were all at full maturity, and fattened fit for the butcher. They were then slaughtered and inspected by an expert jury of veterinary surgeons and meat inspectors. This jury reported the gratifying and instructive result that not one of these cattle, the progeny of tuberculous mothers, presented the slightest suspicion of any tubercular lesion in any part of the body.

In the year 1907 the extent of tubercle infection in our milk supply attracted the special attention of the Health Committee. It was found that fourteen per cent. of the milk coming to Birmingham railway stations from outside districts was tubercle-infected. In view of the second interim Report issued in January 1907 by the British Royal Commission stating that bovine tubercle bacilli in milk was a cause of tuberculosis in man, the heavy percentage of infected milk coming into Birmingham naturally caused serious consideration. The question was important, and the Committee desired full information of what others were doing before coming to any definite decision as to their own future procedure. Liverpool, Manchester and other Health Authorities were then also considering the same question, and a joint conference between Birmingham, Liverpool, Sheffield, Leeds and Manchester was held at Manchester, when the whole subject was discussed and a deputation appointed to wait upon the President of the Local Government Board to urge Government action. Subsequently, as some of you may remember, our Health Authority, having heard of the success of Danish experiments, sent in June, 1908, a deputation consisting of Alderman Dexter, Dr. Robertson and myself to Denmark to obtain first-hand information on Bang's work and its results.

Our trip to Denmark was a most instructive and enjoyable one, except perhaps the sea trip there, which I at least found very trying. We soon found that Bang's work was based on the knowledge that tuberculosis is a contagious disease and that spread in cattle occurs mainly in two ways:—first, by introducing diseased cows among healthy, and second, by feeding calves on infected milk.

By employing tuberculin he found he could easily recognise which cows were infected and which free. His aim has been to eradicate the infection gradually and with the least possible disturbance of the stock-owners' trade. In attempting this he has relied mainly on measures of segregation and isolation, and not on slaughter except in special cases. The clinical wasters and those affected with tuberculosis of the udder, being

manifestly especially dangerous from their extensive disease, are slaughtered. But in all cases where there is no clinical evidence of the disease he relies entirely on tuberculin in diagnosing, and then he secures the effective separation of the infected from the free cows as well as the immediate removal of new-born calves from their affected mothers. These calves are reared on sterilized or tubercle-free milk. Inferior milking, reacting cows, as soon as circumstances warrant are fed off for the butcher, but the good milking reactors may be kept for several years in isolation sheds, provided they continue to yield well and thrive well, and their milk remains free of tubercle infection. In this way, at comparatively little expense, there have been gradually reared up young healthy non-infected dairy herds of good milking strains to replace the former infected ones. At the time of our visit between six hundred and seven hundred young free herds had been established by these measures.

This work of Bang's has not been carried out at the cost of the Government. The Government has no doubt given some financial support to it by paying the veterinary surgeons' fees and supplying tuberculin free of cost, but the main cost has been undertaken by the dairy stock-owners. Much of the expense incurred has been to provide isolation premises in which to keep the infected apart from the free. The conservative procedure followed in only scrapping clinically affected cows has not involved much outlay to replace the slaughtered. To meet the cost of the procedure, however incurred, farmers have joined together in forming numerous small co-operative societies throughout the country. The members of these societies pay a *pro rata* annual subscription according to the number of stock they hold. Each society's proceedings are governed by an executive Committee who decides when and where the needful financial assistance shall be given.

On our way home we obtained at Kiel some first hand information of the German plan of dealing with tuberculosis—by the elimination of clinical cases, otherwise termed cases of "open tuberculosis."

On our return we reported what we had seen, and the Birmingham authorities were so impressed with the benefits that might be derived from a somewhat similar plan to the Danish one that they decided to inaugurate a local measure, offering to farmers within a certain radius of Birmingham, whose milk came to Birmingham, and who were willing to make a serious attempt to eradicate tuberculosis from their dairy herds, the services of their veterinary staff or of the owners' veterinary surgeons and a supply of tuberculin free of cost, on the following conditions :—That the herds shall be tested twice a year, that all reactors shall be effectually isolated in shed and at pasture and got rid of as soon as circumstances are opportune, that all new cows shall be tested before being admitted to the herd, and that the sheds shall be well ventilated, disinfected as required, and kept clean.

I may here say that the German method, or what has been termed Ostertag's method of dealing with tuberculosis in dairy herds was not favourably regarded by the Birmingham Health Authority, and since then my further experience convinces me that they were right in their view. Anyone dealing with the eradication of tuberculosis from dairy or from pedigree herds must admit that no herd could be cleared by such a method. It may somewhat diminish the extent of the disease but never eliminate it. Nothing less than diagnosis by the tuberculin test will suffice for eradication.

Broadly speaking, the effect of the Committee's aforegoing offer appears in the following extract from my last issued report to the Medical Officer of Health :—

"During the year 26 herds were dealt with ; 20 of these numbering 610 cows were free at the end of the year ; 3, numbering 121 cows, were being freed, and 3 herds, numbering 32 cows, were in suspense.

In four instances the testing has been discontinued ; in one case the owner ceased selling milk ; in two the owners deemed the procedure involved too much trouble ; in the fourth the first test revealed so many reactors that the procedure was not continued, 78 per cent. having failed to pass the test.

The testing of these herds has been carried out half-yearly. The results of the testing show that breeding dairy herds into which only young heifers are introduced are more free from tuberculosis at the first test, and further that such herds can be maintained in a tubercle-free state much more easily and economically than herds which are kept up by the purchasing of mature milking cows.

Altogether 1383 cow-tests were made during the year, of these 1141 gave no reaction and 242 gave a reaction. (As the herds are tested twice a year, most cows were tested twice.)

The cows which failed were mostly cows which were purchased subject to passing the test, and having failed were returned to the vendors. The doubtful reactors already in the herd were isolated and retested a month subsequently. Approximately 75 per cent. of these eventually passed.

The newly purchased and other cows tested for the first time last year numbered 241. Of these 51, equalling 21·16 per cent. reacted, and 12 equalling 4·98 per cent. were doubtful ; that is, 63 or 26·1 per cent. failed to pass the test as compared with a percentage of 32·4 in the preceding year."

Since this report was issued another two herds have been added to the tubercle-free list.

Besides dealing with tuberculosis in the aforegoing manner, our efforts to eliminate tubercle infection from the milk supply has been continued on two other lines :

1. The systematic sampling and the bacteriological examination of the samples taken from the milk churns, with the subsequent examination of the dairy herd yielding infecting samples, followed by the removal of the offending cow or cows from the dairy herd. (Of the mixed samples taken from outside dairies 10 per cent. were found infected.)

2. The systematic examination of all cows in dairy herds within the city boundary and the elimination therefrom of any cow giving infected milk. That this examination is a fairly large order will be apparent when I state that there are in the city 157 cow-keepers, occupying 186 farms, and owning 2,244 cows housed in 360 sheds, and that each cow prior to the war was visited and inspected at least once a month, and since the war once every six weeks. On the whole, result so far as city cows are concerned has been highly satisfactory, only two cows in 2,244 being found giving tubercle bacilli in their milk and affected with tuberculosis of the udder.

Birmingham Corporation holds the position, so far as I know, of being the only local authority that has attempted to help farmers eliminate tubercle-infection from dairy herds. London, Manchester, Liverpool, Sheffield, Leeds and other authorities have done much in tracing cows actually infecting the milk supply and eliminating such from the dairy herds, but they have not attempted to eliminate the non-clinical reacting cows. Birmingham also is the only one that has financially helped the farmer to bear the loss he has to sustain. Under the existing law there is nothing to prevent any farmer selling any cow to anyone for whatever he can get. All local authorities dealing with the matter have occasional experience of farmers taking full advantage of their powers and selling the offending cow. The purchaser in these cases is usually someone located outside the jurisdiction of the local

authority. Formerly Birmingham's experience was no exception to this. I brought the matter before the Health Authority and after full consideration they decided where there was any difficulty in securing the slaughter of such a cow, to authorise the veterinary inspector to negotiate with the owner for her slaughter by offering him any sum not exceeding £4 that the inspector deemed fair. This has ever since been in force except during the short period two years ago when the Board of Agriculture's Tuberculosis Order was in operation, under which Order Government provided the compensation. Since we obtained this power only one farmer has declined to have his cow at once slaughtered. And he must have afterwards wished he had accepted our offer, as he was rather heavily fined for failing to keep the cow in question isolated from his other cows, as is provided for under the Birmingham Corporation Act of 1903.

In view of the help Birmingham has been ready to give any farmers desirous of freeing their herds from the incubus of tubercle, some of you may wonder that more of them have not accepted Birmingham's offer. One of the chief reasons appears to be due to the difficulty farmers experience in getting an appreciably better price for milk from herds of tubercle-free cows than for milk from ordinary herds however highly infected. Last year one of the largest wholesale dealers declined to give any more for the one milk than for the other. And it was only after my own intervention that he consented to give a slightly better price for the supply from a fine tubercle-free herd than for his ordinary supply. The dealer put the onus for this solely upon the consumers. He said that he would willingly give more for the milk from free cows if he could sell it for more, but he declared he could not. It is very different in Denmark. For example, in Copenhagen all milk for children is guaranteed to be from free cows, and it brings a very appreciable increase in price over milk not so guaranteed. Under existing conditions price seems to be the crux of the whole matter. We have now reached the stage here that anyone desirous of getting the milk of tubercle-free cows for their children can do so if they are willing to pay a little more for it. Provided they are adequately rewarded, Birmingham dairy farmers are quite ready to supply any quantity of pure milk from tubercle-free cows. Without this cash incentive the large majority simply decline to take the extra trouble involved in supplying such milk.

It now seems to me very doubtful if under existing conditions the demand for such guaranteed milk for infants will give rise to any great extension of the present sources of supply unless Government takes the matter up in earnest. But the enactment that provides for this must be a much more thorough measure than the new Milk and Dairies Act. I have no hesitation in saying this. Though I advocated the passing of this Bill as a first step, yet no one more fully realises the utter futility of its tuberculosis provisions from any eradication point of view than I do. But I am not without hope that, notwithstanding the war, Government will at no very distant date find sufficient cash and courage to tackle the bovine tuberculosis scourge on a sound scientific and business basis.

Personal.

SEARBY.—On Friday, 26th May, at Ramsey, Hunts, to the wife of B. A. Searby, M.R.C.V.S.—a daughter.

Mr. JAMES R. JACKSON, M.R.C.V.S., Coleraine, was amongst the prize winners at the show of the Coleraine Agricultural and Industrial Association, Ltd., on the 6th inst., and Mrs. J. R. Jackson won the cup for the best two-year-old harness gelding or filly.

Mr. H. L. CHAMBERS, M.R.C.V.S., Banbridge, took first prize, with his Spook II., in the section for horses at the Summer Show of the Portadown Agricultural Society.

ARMY VETERINARY SERVICE

Extracts from *London Gazette*,
WAR OFFICE, WHITEHALL, June 9.

REGULAR FORCES. ARMY VETERINARY CORPS.

June 12.

Temp. Lts. to be temp. Capts.:—E. J. Tomlin (May 19); F. S. Warburton (May 27); F. Booth, P. G. Ledger, H. G. Simpson, A. S. Ferguson, G. Simons (June 1).

June 13.

To be temp. Lieut.:—V. L. Banks (May 9).

June 9.

SPECIAL RESERVE OF OFFICERS.

Lieut. W. J. Bambridge to be Captain (Dec. 23, with seniority next below T. M. Mitchell).

The following casualty is reported:—

DIED—Dresser C. C. Doak, 716, S. African V.C.

June 15.

The following dispatch has been received by the Secretary of State for War:—

General Headquarters, April 30.

Sir,—I have the honour to forward herewith the names of those under my command whom I wish to bring to notice for gallant and distinguished conduct in the field.

I have the honour to be, Sir, your obedient servant,
D. HAIG, General, Commander-in-Chief
The British Forces in France.

STAFF.—ARMY VETERINARY CORPS.

* * * *

Lt.-Col. H. J. Axe, Maj. D. Bolton, Maj. G. Conder, Maj. O. S. Fisher, Maj. P. J. Harris, Maj. G. T. T. Jackson, Maj. A. Leaning, Maj. W. Ludgate, Maj. D. Macdonald, Maj. (temp. Lt.-Col.) W. A. Dougall, F.R.C.V.S., (T.F.), Lt.-Col. E. E. Martin, F.R.C.V.S., Lt.-Col. A. C. Newsom, Temp. Maj. G. B. C. Rees-Mogg, (Vet. Capt. 1st L. Gds.), Capt. (temp. Maj.) R. Tindle.

ARMY VETERINARY CORPS.

Maj. (temp. Lt.-Col.) J. J. Aitken, Maj. T. E. Burridge, Capt. (temp. Maj.) J. R. Hodgkins, F.R.C.V.S., Capt. (temp. Maj.) V. C. Leckie, Capt. S. W. Marriott, Capt. A. A. Pryer, Capt. U. W. F. Walker, Lt. C. J. R. Ryan (S.R.), Lt. C. Tracy (S.R), Qmr. and hon. Lt. W. J. Alderson, Qmr. and hon. Lt. J. Fisher, S.-Sgt. (temp. Sgt.-Maj. R. J. Bales, 65, S.-Sgt. (temp. Sgt.-Maj. T. J. Sutton, 105, L.-Cpl. (temp. S.-Sgt.) T. A. Cox, 517, Pte. (temp. S.-Sgt.) J. Crawley, 569, Pte. (temp. S.-Sgt.) J. Ewing, S.E./610, Temp. S.-Sgt. W. J. Fermor, 115, Pte. (temp. S.-Sgt.) J. Ruddy, 552, Pte. P. F. Flood, S.E./6724, Pte W. Roullier, S.E./155, Cpl. C. J. C. Wilton (S.R.) 11.

Supply of Petrol in Ireland.

The Major-General in Charge of Administration, Irish Command, announces that in Dublin City all restrictions regarding the sale of motor spirit have been removed.

At other places in Ireland there are no restrictions excepting that persons can only obtain petrol through the local police authority; therefore, any difficulties experienced by would-be purchasers should be referred by them to the Inspector-General, Royal Irish Constabulary, as there is no limit to quantities which vendors may remove by authority from Dublin.

SUBSCRIPTIONS TO R.C.V.S.

The Secretary of the Royal College of Veterinary Surgeons begs to acknowledge the receipt of the following subscriptions for 1916 to the College funds:—

J. Abson, Major A.V.C.	£1	1	0
W. Anderson, Capt. A.V.C.	1	1	0
E. F. Angler, Capt. A.V.C.	1	1	0
A. Barr, Capt. A.V.C.	1	1	0
D. J. Barry, Major A.V.C.	1	1	0
J. Blackburn, Capt. A.V.C.	1	1	0
J. C. Blake, Newport, Isle of Wight	1	1	0
W. A. I. Buchanan, Capt. A.V.C.	1	1	0
J. Buxton, London	1	1	0
F. L. Carter, London	1	1	0
J. M. Culhane, Lieut. A.V.C.	1	1	0
H. C. Dibben, Major A.V.C.	1	1	0
A. J. Dobbyn, Waterford	1	1	0
W. P. S. Edwards, Capt. A.V.C.	1	1	0
T. A. McC. Finch, Lieut. A.V.C.	1	1	0
J. D. Fulton, Bexley Heath	1	1	0
F. W. Garnett, Windermere	1	1	0
F. C. Gavin, Major A.V.C.	1	1	0
J. A. Gold, Redditch	1	1	0
W. G. Green, Capt. A.V.C.	1	1	0
D. C. Greene, Capt. A.V.C.	1	1	0
D. Hamilton, Ballina	1	1	0
W. Harley, Lieut. A.V.C.	1	1	0
J. W. Hayes, Edinburgh	1	1	0
S. E. Hill, Capt. A.V.C.	1	1	0
S. Hunter, Capt. A.V.C.	1	1	0
Hunting, C. S., Sen., Haswell	1	1	0
Hunting, C. S., Jun., Loughborough	1	1	0
P. D. Huston, Capt. A.V.C.	1	1	0
E. E. Jelbart, Capt. A.V.C.	1	1	0
H. King, London	1	1	0
W. S. King, London	1	1	0
R. E. Leach, Capt. A.V.C.	1	1	0
R. G. Linton, Edinburgh	1	1	0
G. H. Locke, Manchester	1	1	0
H. J. Lowe, Capt. A.V.C.	1	1	0
J. Macfarlane, Lieut. A.V.C.	1	1	0
A. MacIntosh, Lieut. A.V.C.	1	1	0
W. F. Morton, Capt. A.V.C.	1	1	0
W. S. Mulvey, Major, R.E.	1	1	0
C. F. Parsons, Cheltenham	1	1	0
A. E. Payne, Weybridge	1	1	0
C. E. Perry, Staple Hill, nr. Bristol	1	1	0
J. Player, Capt. A.V.C.	1	1	0
J. Reilly, Lt.-Col., Adare, Co. Lim.	1	1	0
H. H. Roberts, Leatherhead	1	1	0
C. Rutherford, Col. A.V.S.	1	1	0
S. H. Slocock, Hounslow	1	1	0
J. M. Smith, Capt. A.V.C.	1	1	0
G. Stevenson, Kirkwall, Orkney	1	1	0
J. C. Storie, Capt. A.V.C.	1	1	0
J. L. Taylor, Lieut. A.V.C.	1	1	0
E. J. Thorburn, Crewkerne	1	1	0
P. R. Turner, Lieut. A.V.C.	1	1	0
C. E. Wells, London	1	1	0
S. Wharam, Leeds	1	1	0
G. Whitehead, Lieut. A.V.C.	1	1	0
J. E. Young, Capt. A.V.C.	1	1	0
Previously acknowledged	440	1	6
	£500	19	6

Note.—The address of Mr. A. E. Roberts, given in the list on p. 485, *V.R.*, Apl. 22nd, should be Chepstow, and not Bournemouth as stated.

Anglo-Franco-Belgian Veterinary Relief Fund.

The following additional donations are reported :—

H. E. Gibbs, Major A.V.C.	£2	2	0
C. F. Parsons, Cheltenham	1	1	0
Previously reported	190	15	3
Total	£193	18	3

THANKS TO ELECTORS.

I desire to convey my most sincere thanks to every member who voted for me at the recent election for members of Council.

Lanark, 10th June. PETER WILSON.

ROYAL COLLEGE OF VETERINARY SURGEONS,
10 RED LION SQUARE,
LONDON, W.C., June 14, 1916.

PETROL CENSUS.

In reference to the order issued by the Board of Trade, requiring a return as to the consumption of motor spirit, I have ascertained from the Petrol Control Committee that Veterinary Surgeons should fill up form No. 1. *They should, however, state on the form that the spirit is required in connection with their veterinary practice*, and I am assured that if this is done the forms will be properly sorted out and that the requirements of Veterinary Surgeons will be safeguarded.

PETROL SUPPLIES.

I am informed by the Secretary of the Petrol Control Committee that if any Veterinary Surgeon, who is unable to obtain adequate supplies of petrol, will inform the Committee of the brand of spirit he uses, the number of gallons he requires, and the name and address of the firm or company that usually supplies him, arrangements will be made to meet his requirements.

Letters should be addressed to the Secretary, Petrol Control Committee, 29 Abingdon Street, Westminster, London, S.W.—Yours faithfully,

FRED BULLOCK, Secretary.

CORRESPONDENCE.

THE TAX ON MOTOR LICENSES.

(*The following letters from Members of Parliament have been forwarded to us for publication.*)

House of Commons,
31st May, 1916.

My dear Sir,—I have your letter of May 29th, and quite agree with you in thinking that a veterinary surgeon ought to have the same advantage as that given to the medical profession with regard to the car which he uses. I shall therefore be pleased to support Mr. O'Connor's Amendment when the time comes. Yours faithfully,

J. H. Carter, Esq. PHILIP MOWELL.

House of Commons,
May 31, 1916.

Dear Mr. Over,

The suggestion in favour of veterinary surgeons seems to me fair, and I will do what I can in the matter. I hope you are well. Yours sincerely,

JOHN BAIRD.

Berkeley House, Hay Hill,
Berkeley Square, W.
23rd May, 1916.

Dear Sir,—I am in receipt of your letter of the 22nd, and shall be pleased to support the Amendment in Committee on the Motor License, to reduce same for motors used by veterinary surgeons for professional purposes. I remain, yours faithfully,

T. Cozens Garry, Esq., F.R.C.V.S., Spencer Park, Wandsworth Common. SAMUEL SAMUEL.

Smith's Lawn, Sunningdale.
8th June, 1916.

Dear Sir,—I am heartily in sympathy with the Amendment to the Finance Bill providing for a rebate of half the license duty on motor cars used by veterinary surgeons, and if I have the opportunity will give it my support and vote.

Yours faithfully,

D. Forwell, Esq., Towcester. E. A. FITZROY.

House of Commons,
June 6, 1916.

Dear Sir,—I have received your communication with reference to the amendment to the Finance Bill providing for a rebate of half the licence duties on motor cars used by Veterinary Surgeons for professional purposes.

I hope the Chancellor of the Exchequer will see his way to accept the amendment. I am, yours faithfully,

J. HERBERT ROBERTS.

David Evans, Esq., M.R.C.V.S., Llanrwst.

Stornoway, N.B.
7th June, 1916.

Dear Mr. Dixson,

Your letter reached me after I left London, and only on my return here from a cruise.

I am sorry that I am unable to take any action in the House, for I fully sympathise with your point of view.

I have not seen the papers and do not know what action was taken in the House, but, if the matter has not yet been dealt with, I shall be pleased to write to some friends to obtain serious support for the Amendment. With kind regards, sincerely yours,

NORMAN CRAIG, K.C., M.P.

Granville House, The Grosvenor,
Margate, 13th June, 1916.

Dear Mr. Craig,

Thanks so much for your kind letter, promising to interest yourself with the subject about which I wrote. The matter has *not* yet been dealt with, so that as you will in all probability be absent from the house yourself, your kind offer to write to friends as promised, to interest themselves on behalf of the veterinary profession will be greatly appreciated. I know your time is taken up a great deal "doing your bit," and that is all the more reason why I feel doubly grateful to you for your kindly interest. I shall be glad to hear from you what promises of support you have received, as the members of the profession as a whole are working to attain their ends. With kind regards, sincerely yours,

E. LYNE DIXSON, M.R.C.V.S.
(President S.E.V.A.)

DISEASES OF ANIMALS ACTS 1894 TO 1914, SUMMARY OF RETURNS.

Period.		Anthrax		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange. ‡		Sheep Scab.	Swine Fever.	
		Out-breaks (a)	Ani-mals.	Out-breaks (a)	Ani-mals.	Out-breaks (b)	Ani-mals.	Out-oreaks (b)	Ani-mals.	(b)	Out-breaks (a)	Slaugh-tered. *
GT. BRITAIN. Week ended June 10		10	11			1	1	32	94		121	358
Corresponding week in	1915 ...	8	8			4	4	20	41	1	123	720
	1914 ...	12	13			5	26	28	40		121	1074
	1913 ...	13	15			2	5	61	126	1	65	772
Total for 24 weeks, 1916		300	356	1	24	23	64	1451	3378	173	2399	7540
Corresponding period in	1915 ...	342	379			19	24	‡372	‡827	156	2089	9742
	1914 ...	413	440	11	74	48	116	1316	2361	145	2009	20223
	1913 ...	306	330			81	231	1594	3265	121	1116	16095

‡ The Parasitic Mange Order of 1911 was suspended from 6th August, 1914, to 27th March, 1915, inclusive.

(a) Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked :—Stafford 1.
Board of Agriculture and Fisheries, June 13, 1916 Excluding outbreaks in army horses.

IRELAND. Week ended June 3	...	...	...	...	...	...	Outbreaks 2	1	8	43
Corresponding Week in 1915 ...	...	...	...	...	...	...	7	5	10	34
1914 ...	...	...	1	14	...	...	1	1	3	35
1913 ...	...	...	...	...	...	...	1	3	3	19
Total for 23 weeks, 1916 ...	2	6	...	...	...	...	31	214	138	732
Corresponding period in 1915 ...	1	1	...	...	1	3	30	245	131	773
1914 ...	1	1	75	955	...	...	46	336	107	552
1913 ...	...	...	...	...	...	...	88	291	75	455

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, June 5, 1916
NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection